

REMARKS

This application has been carefully reviewed in light of the Office Action of September 20, 2006, wherein:

1. Claims 1-3 were rejected under 35 U.S.C. §102(e) as being anticipated by Murti et al., hereafter "Murti" (U.S. Publication No. US 2003/0228718 A1);
2. Claims 4-5, 8-9, 11-15, and 19-20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Murti et al. (U.S. Publication No. US 2003/0228718 A1);
3. Claims 13-15 and 19-20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Murti et al. (U.S. Publication No. US 2003/0228718 A1);
4. Claims 6-7, 10, and 16-18 were objected to, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections: §102(e)

1. The Examiner rejected Claims 1-3 under 35 U.S.C. §102(e) as being anticipated by Murti et al., hereafter "Murti" (U.S. Publication No. US 2003/0228718 A1).

A. Claims 1 and 3

Regarding Claims 1 and 3, the Examiner states that "Murti discloses a apparatus and a method of fabricating a field effect transistor comprising:

depositing a dielectric layer 14 on a substrate 16;

placing a polymer composite over at least a portion of the dielectric layer 14 to form drain 20 and source contacts 22, the polymer composite having a conducting filler [paragraph [0050]]; and

forming an organic semiconductor layer 12 over at least a portion of the polymer composite, the organic semiconductor layer 12 providing a channel between the drain 20 and source contacts 22 [Fig. 1 and paragraph [0044]]."

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal*

Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

The Applicant have herein filed a Request for Continued Examination (RCE) along with amendments to Claim 1 to further clarify the novelty of the present invention. The second method step, of “placing a polymer composite,” has been amended to state “placing a polymer composite in an atmosphere over at least a portion of the dielectric layer to form drain and source contacts. . .” The novelty of the present invention is the ability to apply the polymer composite solution in an atmosphere, as opposed to in a vacuum, as used in traditional fabrication techniques. Support for this amendment is stated in paragraph [0039] of the specification. Therefore, Claim 1 has been amended to clarify that the polymer composite is being deposited in an atmosphere, rather than in a vacuum using the vacuum-deposition technique disclosed in the Murti reference (see Murti, paragraph [0059]). Murti does not disclose a solution-based process for the application of the polymer composite in an atmosphere used to form the drain and source contacts, and therefore lacks all of the elements recited in Claim 1.

Therefore, the Applicant believes that the amendment to Claim 1 properly distinguishes the present invention from the Murti reference and any additional prior art. The Applicant respectfully request that the rejection of Claim 1 be withdrawn and timely allowed.

Claim 27 has also been added as a dependent claim to Claim 1, to further state how both the deposition of the polymer composite and the deposition of the organic semiconductor layers are done through solution-processing. The novelty of the present invention is the use of a fully solution-based process to form a thin, flexible, inexpensive device. The solution-based process is first used to apply the polymer composite over the dielectric layer to form drain and source contacts, as stated in paragraph [0042] of the specification. Then, the organic semiconductor layer is formed by a solution-based process, as supported by the specification in paragraphs [0045-46].

With regard to Claim 3, the Examiner rejected Claim 3 as being anticipated by Murti. However, as Claim 3 depends upon Claim 1, and as the Applicant believes that Claim 1 is now allowable, the Applicant respectfully submit that Claim 3 should also be allowable. Therefore, the Applicant respectfully requests that the rejection of Claim 3 be withdrawn and timely allowed.

B. Claim 2

The Examiner further rejected Claim 2, stating that Murti discloses the act of forming an organic semiconductor layer by dissolving an organic semiconductor in a solvent forming a semiconductor solution; depositing the semiconductor solution over at least a portion of the polymer composite; and evaporating the solvent from the semiconductor solution such that the organic semiconductor layer remains [paragraph [0002]].

The Applicant refers the Examiner to the arguments presented in section A. (above) with regard to the amendments to Claim 1. As the Applicant believes that Claim 1 is in allowable condition, the Applicant submits that Claim 2, which depends from Claim 1, is also in allowable condition. Therefore, the Applicant respectfully requests that the rejection of Claim 2 be withdrawn.

Claim Rejections: §103(a)

2. The Examiner rejected Claims 4-5, 8-9 and 11-12 under 35 U.S.C. §103(a) as being unpatentable over Murti et al., hereafter “Murti” (U.S. Publication No. US 2003/0228718 A1).

C. Claims 4 and 12

The Examiner rejected Claims 4 and 12 under 35 USC § 103(a) as being unpatentable over Murti, stating that “Murti discloses a method of fabricating a field effect transistor comprising:

- forming a first contact pattern 18 on a substrate 16;
- depositing a dielectric layer 14 on the substrate 16;
- depositing a polymer composite having a conducting filler to form a second contact pattern connected with the dielectric layer 14; and
- providing an organic semiconductor layer 12 for connecting a first portion 20 of the second contact pattern with a second portion 22 of the second contact pattern [Fig. 1 and paragraph [0044]].”

The Applicant submits that Murti does not disclose an apparatus and method of fabricating a field effect transistor comprising the act of depositing a *solution-based* polymer composite having a conducting filler to form a second contact pattern connected with the dielectric layer (emphasis added). Therefore, the Applicant has amended Claim 4 to more specifically state how the polymer composite is deposited using a solution-based process. Additionally, the Applicant has further amended Claim 4 to more clearly state how the organic semiconductor layer is deposited using a solution-based process. The formation of the polymer composite-based second contact pattern must be compatible with the application of an organic semiconductor layer to prevent dissolution of the polymer composite. Murti describes the formation of the second contact pattern in paragraph [0059] using the traditional process of vacuum evaporation. Therefore, Murti fails to disclose, teach, or suggest the elements of Claims 4 and 12. The Applicant respectfully requests that the rejections of Claim 4 and 12 be withdrawn.

D. Claim 5

With regard to the rejection of Claim 5, the Applicant refers the Examiner to the arguments presented in section C. with regard to Claim 4. As Claim 5 is dependent on Claim 4, which the Applicant believes is in allowable condition, the Applicant also believes Claim 5 is allowable. For at least these reasons, the Applicant respectfully requests that the rejection of Claim 5 be withdrawn.

E. Claim 8

With regard to the rejection of Claim 8, the Applicant refers the Examiner to the arguments presented in section C. with regard to Claim 4. As the Applicant believes Claim 4 to be in allowable condition, Claim 8, which is dependent upon Claim 4, should also be in allowable condition. For at least these reasons, the Applicant respectfully requests that the rejection of Claim 8 be withdrawn.

F. Claim 9

With regard to the rejection of Claim 9, the Applicant refers the Examiner to the arguments presented in section C. with regard to Claim 4. As the Applicant believes Claim 4 to be in allowable condition, Claim 9, which is dependent upon Claim 9, which is dependent

upon Claim 4, should also be in allowable condition. For at least these reasons, the Applicant respectfully requests that the rejection of Claim 9 be withdrawn.

G. Claim 11

With regard to the rejection of Claim 11, the Applicant refers the Examiner to the arguments presented in section C. with regard to Claim 4. As the Applicant believes Claim 4 to be in allowable condition, Claim 11, which is dependent upon Claim 4, should also be in allowable condition.

Additionally, as previously discussed in section A., Murti fails to disclose the use of a solution-based polymer composite to form the drain and source contacts. As such, Murti also does not disclose the order of depositing the polymer composite and organic semiconductor layers as discussed in Claim 11.

For at least these reasons, the Applicant respectfully requests that the rejection of Claim 11 be withdrawn.

3. The Examiner rejected Claims 13-15 and 19-20 under 35 U.S.C. §103(a) as being unpatentable over Murti et al., hereafter "Murti" (U.S. Publication No. US 2003/0228718 A1).

H. Claim 13

The Examiner states that Murti discloses a field effect transistor comprising:
a substrate 16 including a first contact pattern 18;
a dielectric layer 14 disposed on the substrate 16;
a polymer composite connected with the dielectric layer 14, the polymer composite providing a second contact pattern, the second contact pattern having a first portion 20 and a second portion 22, where the first portion 20 and the second portion 22 are separated by a distance; and

an organic semiconductor layer 12 connected with the dielectric layer 14, the organic semiconductor layer 12 allowing for an electrical connection between the first portion 20 and the second portion 22 of the second contact pattern [Fig. 1 and paragraph [0044]].

The Applicant asserts, as mentioned previously in sections A. and C. above, that Murti does not disclose the use of a solution-based polymer composite deposited in an atmosphere to provide a second contact pattern. The Applicant has amended Claim 13 to further state that the polymer composite is deposited in an atmosphere, as supported by the specification in paragraph [0039]. As Murti fails to disclose a solution-based process for depositing the polymer composite in an atmosphere, the Applicant requests that the rejection of Claim 13 be withdrawn.

I. Claim 14

With regard to Claim 14, the Applicant refers the Examiner to the arguments presented in section H. above. As the Applicant believes Claim 13 is in allowable condition, Claim 14, which is dependent upon Claim 13, is also in allowable condition. For at least these reasons, the Applicant respectfully requests that the rejection of Claim 14 be withdrawn.

J. Claim 15

With regard to Claim 15, the Applicant refers the Examiner to the arguments presented in section H. above. As the Applicant believes Claim 13 is in allowable condition, Claim 15, which is dependent upon Claim 13, is also in allowable condition. The Applicant therefore respectfully requests that the rejection of Claim 15 be withdrawn.

K. Claim 19

With regard to Claim 19, the Applicant refers the Examiner to the arguments presented in section H. above. As the Applicant believes Claim 13 is in allowable condition, Claim 19, which is dependent upon Claim 13, is also in allowable condition. For at least these reasons, the Applicant respectfully requests that the rejection of Claim 19 be withdrawn.

L. Claim 20

With regard to Claim 20, the Applicant refers the Examiner to the arguments presented in section H. above. As the Applicant believes Claim 13 is in allowable condition, Claim 20, which is dependent upon Claim 13, is also in allowable condition.

Additionally, as discussed previously in section H., Murti does not disclose the use of a polymer composite formed with an organic semiconductor layer in a fully solution-based process, as is disclosed and claimed in the Claim 20.

For at least these reasons, the Applicant respectfully requests that the rejection of Claim 20 be withdrawn.

Claim Objections & Allowable Subject Matter

4. Claims 6-7, 10, and 16-18 were objected to, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

M. Claims 6-7, 10, and 16-18

The Examiner objected to Claims 6-7, 10, and 16-18 as being dependent upon a rejected base claim, but indicated that they would be allowable if rewritten in independent form to include all limitations of the base claim and any intervening claims.

The Applicant appreciates the indication of allowable subject matter, and has added new claims 21-26 that reflect the aforementioned objected claims rewritten into independent form. However, as the Applicant believes that the aforementioned claim amendments render the previously objected claims dependent upon valid and novel independent base claims, the Applicant has not cancelled the original Claims 6-7, 10, and 16-18.

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Concluding Remarks:

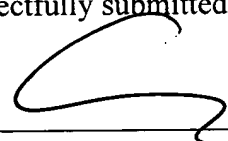
10 The Applicant respectfully submits that in light of the above comments and remarks, all claims are in allowable condition. The Applicant thus respectfully requests timely allowance of all of the pending claims.

15 In the event the Examiner wishes to discuss any aspect of this response, or believes that a conversation with either Applicant or Applicant's representative would be beneficial the Examiner is encouraged to contact the undersigned at the telephone number indicated below.

20 The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to the attached credit card form. In particular, if this response is not timely filed, the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136(a) requesting an extension of time of the number of months necessary to make this response timely filed. The petition fee due in connection therewith may be charged to deposit account no. 50-2691 if a credit card form has not been included with this correspondence or if the credit card could not be charged.

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Respectfully submitted,



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